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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,006	10/29/2003	Kuo-Chi Tu	TS02-1033	7106

7590 09/21/2006

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EXAMINER

MITCHELL, JAMES M

ART UNIT PAPER NUMBER

2813

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,006

Applicant(s)

TU, KUO-CHI

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25 and 27-46 is/are pending in the application.
- 4a) Of the above claim(s) 31-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25, 27, 28, 30, 39-42 and 44-46 is/are rejected.
- 7) ☒ Claim(s) 29 and 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to applicant's election filed April 7, 2006.

Election/Restrictions

2. Applicant's election without traverse of Species I in the reply filed on April 7, 2006 is acknowledged. Claims 31-38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim.

3. Although applicant has asserted that newly added claim 46 is generic, it is not. Generic claims should require no material element additional to those required by the species claims, and each of the species claims must require all the limitations of the generic claim. See M.P.E.P 806.04(d). Because Species I do not require all the limitations of claim 46, it is not generic. For example, neither independent claim 25 or 39 requires a contact connecting to a top surface of the first device.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the

United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 25, 27, 28, 30, 39-41 and 44-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Broekaart et al. (U.S. 6,939,812).

6. Broekaart (Fig. 1, 3, 4) discloses:

(cl. 25, 39, 45, 46) a planar insulating layer (13) with contact openings (14) on a substrate (1) having device areas comprised of: a conducting layer (7) having an anti-reflective coating (8) on top surface, said planar insulating layer on said patterned conducting layer having said contact openings of varying depths (Fig. 3) to said device areas, some of said contact openings (15) extending down to and above a border of the component and therefore over an edge of said patterned conducting layer (e.g. hole, 14, 15, 16...also hole, 15, covering portion of vertical edge of conductor, 7) within said opening areas (15), said patterned conducting layer, wherein at least two¹ of said contact openings extending down to and over an edge of said patterned conducting layer within said opening areas are on opposite sides of open areas (e.g. nothing in space to left and right of via)²;

(cl. 30) and the anti-reflective coating is TiN (Col. 2, Line 50);

(cl. 40) with at least one opening has a uniform depth (18, e.g. understood to mean all portions of bottom of hole ends at same point/planar);

(cl. 41) with at least one hole varying in depth to the first insulating layer (e.g. left portion of via 15 extends below right portion);

¹ Multiple Vias such as 15 are duplicated in photolithographic process (Col. 2, Lines 30-40).

² e.g. via 40 in applicant's Fig. 5 is the same structure as Broekaart's via 15

(cl. 44) where the first device is adjacent to second device (3, 4, 5; Col. 2, Lines 35-37).

7. With respect to the process limitation of claims 25, 27, 28, 45 for example that the conductive layer is "patterned" or "the openings are etched," and a "masking and etching step," the prior art structure is the same as the claimed invention. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

8. With respect to claim 1, the prior art forms the same structure as the claimed invention. Thus the intended use limitation of "to allow for more relaxed alignment tolerance" and "for forming low-resistance contacts..." does not differentiate the claimed invention from a prior art, since it has been held that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Broekaart et al. (U.S. 6,939,812) in combination with Ikemasu et al. (U.S. 2002/0096772).

11. Broekaart discloses the elements stated in paragraph 6 of this office action and further that the device contains a MOSFET and therefore a source and drain (Col. 2, Lines 30-40), but fails to explicitly disclose a filled opening/interconnect in contact with the FET's source or drain.

12. Ikemasu (Fig. 14) utilizes a filled opening/interconnect (46) in contact with its source or drain (25).

13. It would have been obvious to one of ordinary skill in the art to art to incorporate a filled opening in contact with the source/ drain of Broekaart in order to utilize the FET's function³ within the device and to further interconnect it with other devices as shown in Ikemasu (Fig. 14).

Allowable Subject Matter

14. Claims 29 and 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

³ E.g. transistor exhibits switching characteristics.


15. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or make obvious forming the a conductive layer covered with antireflective coating as the top electrode for a capacitor including all the limitations of the independent claim.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

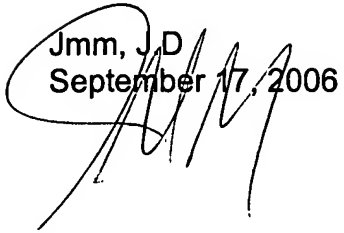
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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Jmm, J.D.
September 17, 2006

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke, is written over the typed text.